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\*\*\*\*\* FAX COVER PAGE \*\*\*\*\*

TO: Josh Epel, Esq.(303) 572-<sup>3037</sup>0950

FROM: TERRY MCNULTY

RE: Rico Mine / Water Treatment Plant

Josh, per our conversation this AM, here is my  
resume. If Mr. Webster authorizes us to proceed, I'd  
appreciate as much information as I can get about  
the treatment plant so I can do a proper job of  
assessing its current condition/capabilities while I  
am collecting water samples. My wife, Carol, and I  
plan on being in the Dolores area January 12-17.

Terry

NUMBER OF PAGES INCLUDING COVER

IF YOU DO NOT RECEIVE ALL PAGES PLEASE CALL (520)529-3355

DATE January 3, 2000 TIME 11:15

**DR. TERRY MCNULTY**  
**PRESIDENT**  
**T.P. MCNULTY AND ASSOCIATES, INC.**  
**4550 N. TERRITORY PLACE**  
**TUCSON, AZ 85750**

**PHONE (520)529-3355**  
**FAX (520)529-3943**

**TERRY P. MCNULTY  
MINERAL PROCESSING AND  
CHEMICAL ENGINEERING  
CONSULTANT**

**EDUCATION**

B.S. Chemical Engineering, 1960, Stanford University  
M.S. Met. Engineering., 1963, Montana School of Mines  
D.Sc. Extractive Metallurgy, 1966, Colorado School of Mines

**REGISTERED PROFESSIONAL ENGINEER, Colorado, No. 24789**

**INDUSTRIAL EXPERIENCE**

**1989 - Present**

**PRESIDENT**

**T. P. McNulty and Associates, Inc.**

Work has been conducted for over 175 clients including mining companies, secondary metal producers, utilities, chemical and hydrocarbon producers, engineering and environmental service firms, law firms, financing institutions, several agencies of domestic and foreign governments, universities and technology developers. These clients have been located in the U.S., the U.K., Brazil, Australia, Canada, Switzerland, Mongolia, Colombia, Venezuela, and Chile.

Types of work performed have included evaluation of acquisition candidates and expert testimony, management consulting and strategic planning, project management, process engineering in base and precious metals, nonmetallic minerals, and industrial chemicals, direction of research programs, plant audits, and assistance in commercialization of new technologies. By late-1999, there were twenty-six Associates, including metallurgists, geologists, chemical engineers, chemists, and mining engineers.

**1983 - 1988**

**PRESIDENT AND CEO**

**Hazen Research, Inc.**

Provided general management to this R&D contracting company through the mineral industry depression of the mid-1980's. There were 105 employees at the low point and 145 at the end of 1988, a year of record profits. I participated in many of the 1400 projects completed during my tenure and managed a variety of them. Project activity included precious metals, yttrium and the rare earths, heavy minerals, coal, brine chemicals, uranium, beryllium, gallium, germanium, iron ore, most nonferrous base metals, boron and lithium compounds, nonmetallic minerals, and industrial wastes.

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**1980 - 1983**

**VICE PRESIDENT - TECHNICAL OPERATIONS**

**Kerr-McGee Chemical Corporation**

Was responsible for overall direction of technical activities, for licensing of in-house technology, and for identification and evaluation of acquisition candidates. Working with marketing personnel, centralized technical groups and engineering and technical staffs at local operations, I directed the development and implementation of programs for new plant construction, plant performance improvement, cost reduction, environmental compliance, product quality improvement, and commercialization of new products. Business units for which I had these responsibilities included potash, soda ash, sodium chloride, sodium borates, sodium sulfate, boric acid, potassium sulfate, synthetic rutile, titanium dioxide pigments, vanadium chemicals, lithium compounds, sodium chlorate, perchlorates of sodium, potassium, and ammonium, electrolytic manganese metal and manganese dioxide, phosphate pebble and concentrates, cogenerated electric power, carbon dioxide, and treated forest products.

**1974 - 1980**

**MANAGER - RESEARCH AND TECHNICAL SUPPORT**

**The Anaconda Company**

Managed all ore processing R&D, process engineering, and technical support related to design, equipment selection, commissioning, and plant performance improvement. R&D projects covered the spectrum from laboratory testing of exploration samples to extensive pilot plant programs. Processing flowsheet development and plant design / startup services were provided to nine operations employing mineral processing, hydrometallurgy, or pyrometallurgy. The commodities dealt with included aluminum, copper, lead, zinc, nickel, uranium, vanadium, chromium, molybdenum, gold, silver, tungsten, and Platinum Group, as well as various nonmetallic minerals.

**1972 - 1974**

**SUPERVISOR OF PROCESS ENGINEERING**

**The Anaconda Company**

Managed process development, process engineering, and equipment selection activities for a copper concentrator, a lead/zinc/silver concentrator, a copper smelter retrofit, and two hydrometallurgical (leach/SX/EW) copper plants. Participated in or led the startups of all these operations.

**1970 - 1972**

**CONCENTRATOR SUPERINTENDENT**

**Anaconda Canada Ltd.**

Supervised completion of design and construction of a 1,000 ton/day copper/zinc/gold/silver flotation concentrator with an acid leaching/cementation circuit,

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## SENIOR RESEARCH ENGINEER

Participated in projects including recovery and refining of beryllium oxide, recovery of alumina from clay, and the hydrometallurgy and pyrometallurgy of copper.

## RESEARCH AND TESTING ENGINEER

Provided plant testing and startup/temporary operating supervision in plants producing copper, lead, and zinc concentrates, ferromanganese, sulfuric acid, phosphoric acid, and various by-products such as arsenic trioxide. During 1961-63, I worked full-time while pursuing a Masters degree part-time. From late 1964 to early 1966, I was on leave to complete doctoral studies, but continued to work on copper smelting and copper fire refining problems for Anaconda.

**AIIME (TMS and SME), The Mining and Metallurgical Society of America, Colorado Mining Association, Northwest Mining Association, Clear Creek County Metal Miners' Association, and Mining Club of the Southwest.**

### Director of three corporations

## PATENTS

**4550 N. Territory Place**

**Tucson, AZ 85750**

**(520) 529-3355**

**(520) 529-3943 FAX**

## PUBLICATIONS AND PRESENTATIONS

- Studies in the System Iron Carbon--Oxygen. M.S. Thesis, Montana School of Mines, May 1963.
- A Study of the Physical Chemistry of Copper Fire Refining. D.Sc. Thesis, Colorado School of Mines, June 1966.
- Absorption of Sulfur Dioxide in Mercury. Transactions of the AIME, T. P. McNulty and A. H. Larson, June, 1967.
- Leaching of Copper Silicate Ore with Aqueous Ammonium Carbonate. International Symposium on Hydrometallurgy, T. P. McNulty and R. F. Frantz, Chicago, February 1973.
- Applications of Hydrometallurgy in Future Mineral Processing Operations, presented to the National Science Foundation, Washington, D.C., July 1975.
- The Role of Instrumentation in Energy Conservation in Copper Production. Proceedings of the 7th Mining and Metallurgy Division Symposium of ISA, Denver, February 1978.
- Challenges in the Minerals Industry. Mines Magazine, April 1979.
- Instrumentation Requirements in Uranium Mining and Processing. Proceedings of the Mining and Metallurgy Division Symposium of ISA, Phoenix, May 1980.
- Changing Energy Economics in Extractive Metallurgy. Society of Mining Engineers Annual Meeting, Salt Lake City, October 1983.
- A Profile of Control in Process Metallurgy. First International Symposium on Modelling and Control in Mineral Processing and Process Metallurgy, Los Angeles, February 1984.
- Processing of Gold and Silver Ores. AIME 12th Intermountain Minerals Conference, Vail, CO August 1984.
- Innovation Sharpens the Competitive Edge. American Mining Congress, Phoenix, September 1984.
- Trends in Mineral Processing. Northwest Mining Association Annual Convention, Spokane, December 1984.
- Frontier Technology in Hydrometallurgy: 1980-1984. T. P. McNulty, P. B. Queneau, and J. E. Litz, AIME Annual Meeting, New York, February 1985.
- Modular and Portable Processing Plants. Society of Mining Engineers Annual Meeting, at St. Louis, September 1986.
- Process Mineralogy of Precious Metals. AIME Mineral Processing Division Annual Meeting, Colorado Springs, May 1987.
- The Role of Ore Testing in the Development of Small Mines. Clear Creek County Metal Miners' Association, Idaho Springs, CO, January 1988.
- Comparative Costs of Pretreatment of Refractory Gold Ores. AIME Mineral Processing Division Annual Meeting, Colorado Springs, May 1988.
- Pretreatment of Refractory Gold Ores. T. P. McNulty, American Mining Congress, (Denver), September, 1988.

Impact of Environmental Regulation on Mineral Processing and Hydrometallurgical Plants, R. B. Coleman and T. P. McNulty, Chapter 37 in the D.W. Fuerstenau Symposium, Volume II, December 1988.

Research and Development, Terry McNulty, Materials and Society, Vol. 13, No. 2, pp 189-191, 1989.

1989 Henry Krumb Lecturer in Extractive Metallurgy, a 5-lecture travelling series sponsored jointly by the Society of Mining Engineers and The Metallurgical Society of AIME.

A Metallurgical History of Gold, American Mining Congress, San Francisco, September 1989.

Treatment of Smelter Flue Dusts, American Mining Congress, New Orleans, September 1990.

Economics of Bioleaching, T. P. McNulty and D. L. Thompson, Microbial Mineral Recovery, pp.171-182, 1990.

Adjustable Speed Drives Cut Costs in Mining and Processing, T. P. McNulty and D. L. Thompson, National Western Mining Conference, Denver, February 1991.

Some Advantages of using Contract Research and Development, N. Hazen and T. P. McNulty, 205th ACI National Meeting (Denver), April, 1993.

Technologies for Treatment of Mining and Processing Wastes, T. P. McNulty and D. L. Thompson, SME/CMA Short Course, "Remediation: The Foundation of Our Future", Denver, 1993.

Pollution Prevention in Mining and Mineral Processing, T. P. McNulty, Plenary Session Paper at USBM/CSM/EPA Joint Symposium, Snowmass, CO, July 1993.

Electricity in Mine Transportation, D. L. Thompson and T. P. McNulty, November, 1993.

Adjustable Speed Drives Yield Process Improvements in Mining and Minerals Processing, L. E. Kissinger, D. L. Thompson and T. P. McNulty, September 1995.

Innovative Technology: Its Development and Commercialization, Terry McNulty, written for presentation in SME Session *Managing Innovation*, Orlando, FL, March 1998.

Recommendations Arising from Plant Performance Audits, Terry McNulty, written for presentation in SME *Plant Operators' Symposium*, Orlando, FL, March 1998.

Ammonia Leaching of Copper Sulfide Concentrates, Nat Arbiter and Terry McNulty, TMS "Copper 99", Conference, Phoenix, AZ, October, 1999.

Annual lecture 1983-1998 to high school science teachers on mineral processing, a program sponsored by the Colorado Mining Association.

Lectures 1983-1998 to undergraduates and graduate students at Colorado School of Mines on metallurgical processing, feasibility studies, and investment decision making.

J.E. REYNOLDS & ASSOCIATES

3961 SOUTH BENTON WAY  
DENVER, COLORADO 80235

PHONE (303) 989-9443  
FAX (303) 989-9477

January 3, 2000

Mr. Josh Epel  
Gablehouse & Epel  
1050 Seventeenth Street  
Suite 1730  
Denver, CO 80265

Re: Rico Mine Drainage Evaluation


Dear Josh:

I have attached a resume of experience in water and wastewater treatment over the past 35 years.

Presently I am completing an audit of the Argo Tunnel Active Treatment Facility for the Colorado Department of Public Health and Environment. A few years ago I prepared the feasibility study and preliminary engineering for the Cyprus Henderson/Urad acid mine drainage system.

Let me know if you need more information.

Sincerely

  
J. E. Reynolds  
JER:ps

**J.E. REYNOLDS & ASSOCIATES**  
**EXPERIENCE IN WATER/WASTEWATER TREATMENT**

Projects involving neutralization of wastewater, handling of sludges and primary/secondary dewatering are marked with a bullet.

- **Canonie Environmental Services Corp.**  
Clark Fork River Basin, Montana  
Analysis of water treatment options and costs
  
- Cyprus Metals, Tucson**  
Developed process to recover manganese and zinc from geothermal brines  
Brawley, CA
  
- **Hunter Douglas, Broomfield, CO**  
Designed and installed waste water treatment facility
  
- Invertec, Chile**  
Designed hypochlorite water treatment plant
  
- KN Energy (Adrian Brown Assoc.)**  
Designed and installed a pump and treat and soil vapor extraction facility, Casper, WY, for treatment of contaminated ground water
  
- Richard P. Arber Assoc. (Denver Water Dept.)**  
Designed a facility to produce alum for Front Range municipal water treatment plants
  
- **Hughes Missile Systems Company, Tucson, Arizona**  
Upgraded industrial waste water treatment system  
Designed a process to remediate 30 acres of impounded hazardous brines and sludges  
Designed and started up an R.O. system and chelate IX facility to replace a MVR/spray dryer  
Installed a facility to treat RO membrane cleaning solutions for on-site disposal
  
- **Glenwood Springs (Oak Meadows Development)**  
Recommended changes in water treatment plant to correct iron and manganese problems
  
- Moly Corp. Inc., Littleton**  
Study to remediate wastewater ponds and install thermal evaporation system
  
- **MidContinent Resources Coal Co.**  
Designed 1000 gpm water treatment facility to replace sedimentation and pH-adjust ponds
  
- **Colorado Container Corp., Denver**  
Designed and installed waste water treatment facility
  
- **RTD, Denver**  
Consultant on maintenance shops waste water effluents



- **Industrial Compliance (Breckenridge Ski Corp.)**  
Design of facility to treat wastewater from snow making operation
- **Circle Circuits, Boulder and Loveland**  
Design of hazardous wastewater treatment facilities
- **Sutter Gold (Adrian Brown Assoc.)**  
Consultant on arsenic removal from mine drainage
- **TIMET, Henderson, NV**  
Audit of plant effluents, plan to remediate 35 acres of ponds and plan to implement zero-discharge of wastewater
- **MSE Technology Application, Montana**  
Consultant on water treatment alternatives for the Anaconda Butte Berkeley Pit
- **Climax Molybdenum Co.**  
Review Mt. Emmons water treatment plant operation and suggest alternative technology to reduce costs
- **Climax Molybdenum Co. (Wheeler, Assoc.) Leadville, Colorado**  
Mine drainage pH control system
- **Climax Molybdenum Co.**  
Basic engineering of water treatment plant for Henderson mine drainage to replace URAD ponds
- **American Potash & Chemical, Henderson, NV**  
Modify chemical plant processes to reduce and/or treat discharge of wastewaters to Lake Mead

**Southern Pacific Railroad/Southern Cal Edison/Union Oil**  
Field- tested a process to recover values (manganese, zinc and iron) from geothermal steam brines

**Union Pacific Railroad**  
Design and installation of facility to treat water from creosote railroad tie operation

**Southern Cal Edison, Mohave Station**  
Treatment of water used in Black Mesa coal slurry pipeline

**CalPine Power, Needles, CA**  
Consultant on water treatment for 400 megawatt power plant on Colorado River

- **Cotter Corporation, Canon City**  
Design of tailings and water treatment for uranium-vanadium plant

**Wyoming Minerals-Kennecott, Bingham Canyon**  
Recovery of metal values from heap leach flow of 12,000 gpm

- **St. George Mining, Utah**  
Treatment of wastewater for zinc, iron, copper and arsenic
- City of New Orleans Waste Management**  
Treatment of leachates from MSW facility
- **Enviroserve, Inc., Englewood, CO**  
Treatment of wastewater for hazardous metals prior to discharge to POTW
- **Kittredge Radiator, Golden, CO**  
Treatment of hazardous wastewater containing lead, cadmium and zinc
- **Livermore Laboratories, California**  
Treatment of briny waste waters
- **Northwest Alloys, Addy, Washington**  
Design of treatment system for liquid and solid effluents
- **Climax Molybdenum, CO**  
Conducted site visits and analysis of water treatment operations at YAK tunnel, Leadville tunnel, Mt. Emmons Project, and Minturn
- W. Wheeler & Assoc, Inc.**  
Design of water treatment plant for Twin Lakes gravel wash operation
- **Newmont Mining, Carlin, Nevada**  
Audit of heap leach operation and design of neutralization of acidic wastewater
- Chlorine Institute**  
Design of wastewater treatment process for mercury removal
- **Molycorp, Mountain Pass, California**  
Audit of tailings water treatment and pipeline
- **H.C. Stark, Boston, Massachusetts**  
Design of HDS process to treat acidic high-fluoride waste water
- Kerr-McGee Chemical, Argus, California**  
Treatment of lake brine flowing at 10,000 gpm for removal of sulfides
- Battle Mountain Gold, Bolivia**  
Treatment process options and comparative costs to destroy cyanide in tailings flow at 4,000 gpm

- **Nuclear Materials, Inc, Massachusetts**  
Ground water pump and treat system for removal of metals and organics
- **Biomedical firm (div. Of Sulzer)**  
Developed HDS treatment process for acid drainage containing metals and phosphates